

# SUBJECT INDEX

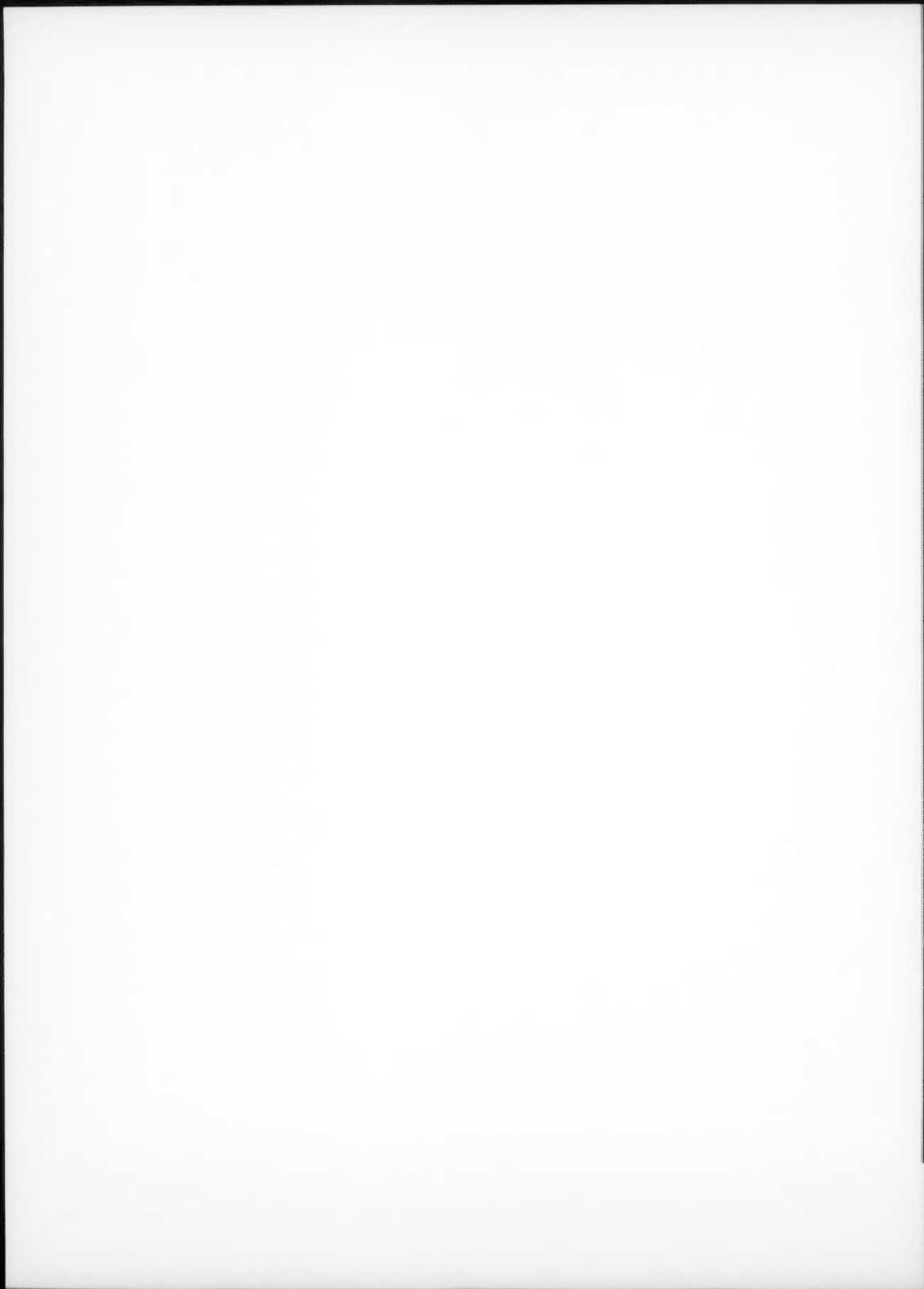
Vol. 136A, Nos. 1-4

- Acanthosis nigricans, 95  
 Acid, 229  
 Acid-base regulation, 701  
 Acne, 95  
 Adaptation, 171  
 Adaptation, 35, 85, 171  
 Adipose, 655  
 Adiposity, 5  
 Adrenergic receptor subtypes, 311  
 Adriatic Sea, 631  
*Aedes aegypti*, 717  
 Aerobic dive limit, 799  
 Aerobic performance, 191  
 Age, 851  
 Aldosterone, 507  
*Alectoris chukar*, 757  
 Alkaline environment, 701  
 Allometry, 301, 757  
 Almonds, 141  
 Ama, 205  
 Amino acid transmitters, 329  
 Amphibian, 259, 271  
 Anaerobic, 171  
 Anaerobic performance, 191  
 Angiotensin II, 557  
 Antibody response, 957  
 Antioxidant, 113  
 Anuran amphibians, 557  
 Apes, 47  
 Aquaporins, 479  
*Artemia*, 353  
 Ascorbic acid, 113, 353  
 Astaxanthin, 683  
 Athletic performance, 191  
 Australopithecines, 27  
  
 Base transport, 701  
 Behavior, 427, 539, 557  
 Bicarbonate, 229  
 Bird, 271  
 Birds, 499  
 Bivalves, 631  
 Blood, 749  
 Body composition, 5, 379  
 Body mass, 851  
 Body proportions, 71  
 Body temperature, 757, 911  
 Boundary layer, 417  
 Brain, 17  
 Brain distribution, 663  
 Breathing, 917  
 Breathing pattern, 943  
 Bullfrog, 693  
  
 Calbindin, 673  
 Calcification, 417  
 Calcium, 417, 673  
 Calcium channels, 417  
 Canthaxanthin, 683  
 Carbon dioxide, 259, 281  
 Carbonic anhydrase, 229, 243, 259, 271, 281  
 Cardiovascular centers, 605  
 Cardiovascular disease, 127  
 Carotenoid, 683  
 Cat, 605  
 cDNA sequence, 655  
 Cerebral cortex, 821  
 Cerebrospinal fluid, 229  
*Chamelea gallina*, 631  
 Chick brain, 447  
 Chick embryo, 391  
 Chicken, 401  
 Child nutrition, 61  
 Chitin, 717  
 Chitinase, 717  
 Chloride, 453  
 Cholesterol, 17, 141  
 Chromosome and sex chromosome evolution, 867  
 Chronic disease, 127  
 Chukar, 757  
 Coelenterates, 329  
 Cold-acclimation, 621  
 Colon, 281  
 Comparative mapping, 867  
 Comparative method, 85  
 Comparative physiology, 229  
 Complementary feeding, 61  
 Confinement, 613  
 Constant region, 811  
 Contraction burst pulses, 329  
 Control of ventilation, 205, 917  
 Convection requirement, 943  
 Cooking, 35  
 Corals, 417  
 Coronary heart disease, 127, 141  
 Cortical rod, 371  
 Cortisol, 525, 613  
*Coturnix coturnix japonica*, 663  
 C<sub>4</sub> photosynthesis, 27  
 Crayfish, 539  
 Crustaceans, 243  
 C-type natriuretic peptide, 565  
 Cutaneous drinking, 557  
 Cutaneous papillomas (skin tags), 95  
 Cyclooxygenase, 409  
  
 Data logger, 799  
 Dehydration, 557  
 Dendritic spines, 827  
 Development, 391, 427  
 Developmental plasticity, 71  
 DHA, 127  
*Dicentrarchus labrax*, 613  
 Diet, 47, 113, 141  
 Diet quality, 5  
 Dietary diversity, 61  
 Dietary methodology, 61  
 Dietary protein, 577  
 Dietary quality, 577  
 Digestive enzyme, 717  
 Digestive function, 701  
 Dive duration, 799  
 Diving, 799  
 Diving behaviour, 799  
 Diving populations, 205  
 Diving response, 205  
 Diving strategy, 799  
 Docosahexaenoic, 127  
 Docosahexaenoic acid, 17  
 Dog, 605  
 Doubly labelled water, 903  
 Drinking, 701  
 Dual-energy X-ray absorptiometry, DXA, 379  
 Duodenal lumen, 591  
  
 Early hominids, 27  
 Early menarche, 95  
 Echidna, 851, 917, 927, 957  
 Echidna, *Tachyglossus aculeatus*, 883  
 Echidnas, 903  
 Effector, 725  
 Egg extracellular matrix, 343  
 Eggshell gland, 673  
 Eicosanoids, 409  
 Electrollocation, 821  
 Electrorception, 821  
 ELISA, 673  
 Embryo, 321  
 Embryonic development, 447  
 Emersion, 539  
 Encephalization, 5  
 Endothermy, 943  
 Endurance, 191  
 Endurance control features, 215  
 Energetic strategy, 441  
 Energy cost, 161  
 Energy expenditure, 903  
 Enforced exercise, 525  
 Enteric nervous system, 591  
 Enzyme immunoassay, 693  
 Epithelial cell carcinomas, 95  
 Epithelial transport, 453  
 Epithelium, 281  
 Equine hyperlipemia, 311  
 Erythrocyte, 259  
 Estradiol, 447  
 17 $\beta$ -Estradiol, 641  
 Estrogen receptor  $\alpha$ , 447  
 Euterrestrial amphipods, 735  
 Evolution, 113, 141, 259, 811, 927  
 Evolution and sensory nerve function, 883  
 Evolutionary health promotion, 153  
 Excretion, 321  
 Exercise and health, 153  
 Exercise recommendations, 153  
 Extrarenal sodium secretion, 507  
 Extreme breath-hold divers, 205  
  
 Fat, 17  
 Fatty acid, 353  
 Feeding, 655  
 Fertilization, 343  
 Fiber, 35  
 Fish, 259, 271, 655  
 Fish consumption, 127

## Subject Index

- FK506, 391  
 FK506-binding protein, 391  
 FKBP12, 391  
 FKBP12.6, 391  
 Fluid homeostasis, 479  
 Fluid transport, 453  
 Foraging efficiency, 799  
*F. paulensis*, 321  
 Fractional utilization of  $VO_{2max}$ , 161  
 Free fatty acids, 895  
 Freshwater adaptation, 771  
 Freshwater invasion, 771  
  
*Gallus domesticus*, 663  
 Gas exchange, 289  
 Gastrointestinal, 499  
 Gene expression, 391, 655  
 Gene-culture co-evolution, 85  
 Genetics, 141, 191  
 Genomic imprinting, 867  
 Geographic distribution, 735  
 Gill, 271  
 Glucocorticoids, 895  
 Glucose, 525  
 D-glucose, 779  
 Glucose transporter, 779  
 GLUT2, 779  
 Gonadotropin-releasing hormone release, 693  
 Gondwana, 927  
 Growth, 61, 851  
 Gull, 749  
 Gut, 507  
 Gut anatomy, 701  
 Gut pH, 717  
 Gyrfication, 827  
  
 Haemocytes, 631  
 Health, 47  
 Heart, 391  
 Heart rate baseline, 289  
 Heart rate fluctuation, 289  
 Hematology, 577  
 Hemocyanin, 725  
 Hemocyte microaggregation, 409  
 Hemolymph osmotic and ionic regulation, 771  
 Hepatocytes, 779  
 Hepatosomatic index, 641  
 Heritability, 191  
 Hibernation, 917  
 High altitude adaptation, 215  
 Hindgut, 507  
 Hispid cotton rat, 577  
 Hominids, 17  
*Homo erectus*, 5  
 Household diets, 61  
 5-HT receptor antagonist, 591  
 Human evolution, 17, 153  
 Human health, 113  
 Human sex ratio, 85  
 Humidity tolerance, 735  
 Hydraulic dredge, 631  
 Hypercapnia, 917, 943  
 Hyperinsulinemia, 95  
  
 Hyperoxia, 289, 917  
 Hypothalamic explants, 693  
 Hypoxia, 289, 917, 943  
  
 IgG, 957  
 Ig isotype switch, 957  
 IgM, 957  
 Iguana, 301  
 Immersion, 539  
 Immune System, 749  
 Immunocompetence, 577  
 Immunoglobulin, 811  
 In vitro, 409, 683  
 In vitro superfusion, 613  
 Increased stature, 95  
 Infant, 17  
 Ingestion rates, 35  
 Insect immunity, 409  
 Instantaneous heart rate, 289  
 Integration, 499  
 Interleukin 1, 663  
 Interleukin-1 receptor mRNA, 663  
 Interleukin-1 receptor, type I, 663  
 Interrenal tissue, 613  
 Intestine, 673, 683  
 Intravascular, 271  
 Iodine, 17  
 Ionoregulation, 701  
 Isocortex, 427  
 Isoform, 401  
 Isozyme, 259  
  
*Jaesus edwardsii*, 353  
  
 Kenyan runners, 161  
 Ketone bodies, 17  
 11-Ketotestosterone, 641  
 Kidney, 229, 507, 565  
 Kidneys, 499  
  
 Lactation, 903  
 Lactose tolerance, 85  
 Lamprey, 779  
 Larvae, 321  
 Leaf litter, 735  
 Leukocyte, 749  
 Lipid, 655  
 Lipid metabolism, 311  
 Liver, 655  
 Liver plasticity, 621  
 Lizard, 301  
 Long-beaked echidna, 911  
 Low score normal, 401  
 Lung, 271  
 Lung volumes, 205  
 Lymphocyte, 749  
 Lytic enzymes, 631  
  
*Macrobrachium*, 771  
 Male vertex balding, 95  
 Mammal, 271  
 Mammals, 827  
*Manduca sexta*, 409  
 Marine fish, 229  
  
 Marsupial, 621  
 Maternal mortality, 85  
 Maximum metabolic rates, 215  
 Maya, 71  
 Meat, 35  
 Mechanical stress, 631  
 Mesozoic mammals, 927  
 Metabolic control, 215  
 Metabolic rate, 757  
 Metabolic rate, 301  
 Metabolism, 191, 943  
 Methionine, 577  
 Micronutrient requirements, 47  
*Microtus cabrerai*, 441  
 Migrating myoelectric complex, 591  
 Migratory cycle, 749  
 Minerals, 47  
 Mitochondrial volume, 621  
 Mojave desert, 539  
 Molecular, 171  
 Monkeys, 47  
 Monoclonal antibody, 371  
 Monoclonal antibody, 401  
 Monotreme, 811, 821, 827, 851, 867, 883, 917, 927, 957  
 Motility, 591  
 mRNA expression, 565  
 Mucus, 281  
 Muscle, 161, 171  
 Mussel, 321  
 Myogenesis, 401  
 Myopia, 95  
 Myosin, 401  
  
 Natriuretic peptide receptor B, 565  
 Natural selection, 85  
 Neocortex, 827  
 Neolithic, 141  
 Neotropical palaemonid shrimps, 771  
 Nested MWC model, 725  
 Neuromuscular junction, 427  
 Neurotransmission, 427  
 Nitric oxide synthase, 605  
 Non-mammalian vertebrates, 453  
 Non-shivering thermogenesis (NST), 621  
*Notomys alexis*, 565  
 Nutrient adequacy, 61  
 Nutrition, 353  
  
 Oklahoma, 577  
 Ontogeny, 301  
 Opossum, 621  
 Organic anions, 453  
*Ornithorhynchus anatinus*, 799, 895, 943  
 Osmolyte, 725  
 Osmoregulation, 243, 499, 507, 525  
 Osmotic challenge, 479  
 Ovarian development, 641  
 Ovary, 371  
 Oxidation, 113  
 Oxidative stress, 113  
 Oxygen, 417  
 Oxygen-consumption, 321  
  
*Pagrus major*, 655

- Palaemon*, 771  
*Palaemonidae*, 771  
 Paleodiets, 27  
 Paleolithic, 113  
*Pectoralis major*, 401  
*Penaeid*, 371  
 Performance, 171  
 Peritrophic matrix, 717  
 Phagocytosis, 631  
 Photosynthesis, 417  
*Phyllosoma*, 353  
 Phylogeny, 85  
 Physical activity, 153  
 Physiology, 539  
 Pipped embryos, 289  
 Plant food, 35  
 Plant sterols, 141  
 Plasma, 673  
 Plasma glucose, 895  
*Platypus*, 799, 811, 821, 895, 927, 957  
 Polycystic ovary syndrome, 95  
 Portfolio, 141  
*P. perna*, 321  
 Pre-pipped embryos, 289  
 Precocial birds, 757  
 Preferential hydration, 725  
*Procambarus clarki*, 539  
 Progesterone, 447  
 Progesterone receptor isoforms, 447  
 Prostaglandins, 409  
 Prototheria, 927  
 Prototherian, 827  
 Pulsatility, 693  
 Pyramidal, 827
- Rainbow trout, 779  
 Rat, 605, 693  
 Rate of oxygen consumption, 943  
 Raw-foodist diets, 35  
 Reactive oxygen species, 655  
 Red blood cell, 259  
 Renal handling of water, 479  
 Renal tubules, 453  
 Repetitive bursts of action potentials, 591  
 Replacement hypothesis, 71  
 Reproduction, 371, 641, 895  
 Reproductive system, 673  
 Reptile, 271, 301, 379  
 Respiration, 259  
 Response of heart rate, 289  
 Resting metabolism, 5  
 Retinoic acid, 391  
 Rhythmic potentials, 329
- RTH-149, 779
- Salinity, 243, 525  
 Salinity adaptation, 771  
 Salinity tolerance, 735  
 Salmon, 683  
 Salt glands, 507  
 Satellite cells, 401  
 Scaling, 301  
 Sea bass, 613  
 Sensors, 417  
 Serotonin, 591  
*Serratia marcescens*, 409  
 Sex steroid hormones, 447  
 Sexual dimorphism, 447  
 Sexual maturity, 851  
 Shellfish, 17  
 Short-beaked echidna, 811  
 Shrimp, 321, 371  
 Sickness behavior, 663  
*Sigmodon hispidus*, 577  
 Simian, 141  
 Small intestine, 591  
 Smooth muscle contraction, 591  
 Snake, 379  
 Sodium, 453, 507  
 Sodium, chloride and magnesium regulation, 771  
 Soil, 735  
 Somatosensory system, 883  
 Soy protein, 141  
 Speciation event, 35  
 Spiny lobster, 353  
 Spleen, 749  
 Squamate, 301  
 Stable carbon isotopes, 27  
 Starvation, 353, 673  
 Stomach, 281  
 Stress, 613  
 Stress response, 525  
 Sub-Saharan Africa, 61  
 Substrate specificity, 717  
 Summit metabolism, 621  
 Supplementation, 577  
 Surface duration, 799  
 Synapse, 827
- Tachyglossus*, 851  
*Tachyglossus aculeatus*, 903  
 Tactile receptors, 883  
 Tactile sensory function, 883  
 Tarantula, 725  
 Tasmania, 903  
 Teleost fish, 641
- Temperature, 525, 539  
 Temperature regulation, 205  
 Temperature tolerance, 735  
 Tentacle pulses, 329  
 Testicular development, 641  
 Testosterone, 641  
 Thermal acclimation, 301  
 Thermal conductance, 757  
 Thermoregulation, 539, 757  
 Thermoregulatory abilities, 441  
 Thomas H. Maren, 229  
 Thymus, 749  
 Tissue aerobic potential, 621  
 Trainability, 161  
 Training, 171  
 Translocation chain, 867  
 Transport, 779  
 Transport regulation, 453  
 Trout, 683  
 Turbot, 525
- Uncoupling protein 2, 655  
 Uptake studies, 779  
 Urate, 453  
 Urine concentration, 479  
 Urine dilution, 479
- Variable region, 811  
 Vasotocin, 479  
 Ventilation, 943  
 Veratridine, 693  
 Vertebrate kidneys, 479  
 Vertebrates, 499  
 Viscous dietary fiber, 141  
 Vitamin A, 683  
 Vitamin C, 113  
 Vitamins, 47  
 Vitellogenesis, 371  
 $\dot{V}O_{2\max}$ , 161  
 $\dot{V}O_{2\max}$  control, 215
- Water deprivation, 565  
 Water transport, 479  
 Weaning, 851  
 White fat cells, 311  
 White leghorn, 401
- Xenopus laevis*, 343  
*Xenopus tropicalis*, 343  
 X inactivation, 867
- Yolk, 371
- Zaglossus*, 911



**AUTHOR INDEX**  
*Vol. 136A, Nos. 1-4*

- Andersen, N.A., 903  
Andersen, N.A., 917  
Ashwell, K.W.S., 883  
Ashwell, K.W.S., 827
- Ballarin, L., 631  
Bar, A., 673  
Barnes, J.A., 911  
Bass, P., 591  
Beard, L.A., 911  
Beatty, C.L., 215  
Belov, K., 811  
Benzie, I.F.F., 113  
Bergman, A.N., 701  
Bergman, H.L., 701  
Bethge, P., 799  
Bogin, B., 71  
Bohringer, R.C., 883  
Braun, E.J., 499  
Braw-Tal, R., 673  
Brown, M.R., 353  
Bugaychenko, L.A., 605  
Burggren, W.W., 289
- Caballero, M.J., 613  
Camacho-Arroyo, I., 447  
Campbell, T.C., 127  
Carrington, E.F., 311  
Cavassin, F., 771  
Cavolina, J.M., 693  
Chen, J., 655  
Chen, J., 127  
Clayton, M.K., 591  
Clode, P.L., 417  
Conklin-Brittain, N., 35  
Connelly, P.W., 141  
Cooper, R.L., 427  
Cordain, L., 95  
Costa, M., 205  
Cowling, J.E., 735  
Coy, C.S., 401  
Crawford, M.A., 127  
Crawford, M.A., 17  
Crear, B.J., 353  
Cunnane, S.C., 17
- Dahle, R., 641  
Dantzer, W.H., 453  
Datsenko, V.V., 605  
Davies, S.J., 683  
De la Fuente, M., 749  
Deakin, J., 867  
Decker, H., 725  
Desautels, M., 311  
Donald, J.A., 565  
Dunstan, G.A., 353  
Dzialowski, E.M., 289
- Eades, M.D., 95
- Eades, M.R., 95  
Eaton, S.B., 153  
Eaton, S.B., 153  
El-Mogharbel, N., 867  
Endeward, V., 281  
Esbaugh, A., 259  
Evans, B.K., 895
- Fan, W., 127  
Fan, Z., 479  
Ferretti, G., 205  
FitzGerald, R., 525  
Foss, A., 525  
Frappell, P.B., 943  
Freire, C.A., 771  
Fry, G.J., 911
- Gallegos, J., 591  
Gaston, K.J., 735  
Gehrich, S., 243  
Ghebremeskel, K., 127  
Gilmour, K.M., 227  
Goldstein, J., 557  
González-Agüero, G., 447  
González-Arenas, A., 447  
González-Morán, G., 447  
Grützner, F., 867  
Gregory, E., 821  
Grigg, G.C., 911  
Gros, G., 281  
Guerra-Araiza, C., 447  
Gusmão, D.S., 717
- Handasyde, K.A., 895  
Harrison, D.A., 427  
Hassiotis, M., 827  
Hawkins, M., 911  
Hedrick, J.L., 343  
Heimeier, R.A., 565  
Hellman, L., 811  
Hellmann, N., 725  
Heming, T., 271  
Henry, R.P., 243  
Hillyard, S.D., 557  
Hochachka, P.W., 215  
Hoff, K., 557  
Holden, C., 85  
Hughes, M.R., 507  
Hwang, F., 655
- Iio, A., 391  
Imsland, A.K., 525
- Jacobson, E.R., 301  
Jenkins, A.L., 141  
Jenkins, D.J.A., 141  
Johansson, H., 605  
Jones, P.J.H., 141
- Jordan, F., 85  
Jorge, R.L.V., 321
- Kagami, H., 391  
Kalezic, I., 605  
Karlsen, Ø., 641  
Kass-Simon, G., 329  
Kendall, C.W.C., 141  
Khandoker, A.H., 289  
Kjesbu, O.S., 641  
Klasing, K.C., 663  
Kleinke, T., 281  
Klunder, M., 441  
Koide, M., 391  
Kostyukov, A.I., 605  
Kruitwagen, G., 525  
Kuzawa, C.W., 5
- Larsen, H.B., 161  
Laurent, P., 701  
Lee-Thorp, J.A., 27  
Lejano, R.S., 343  
Lemos, D., 321  
Lemos, F.J.A., 717  
Leonard, W.R., 5  
Leslie, D.M., 577  
Leyton, J., 127  
Li, J., 127  
Liang, X.-F., 655  
Lindsay, L.L., 343  
Lindstedt, S.L., 621  
Lochmiller, R.L., 577  
Lund, S.G., 259
- Mace, R., 85  
Mahns, D.A., 883  
Maisy, V.A., 605  
Mannerström, M., 779  
Marchie, A., 141  
Marin, M.G., 631  
Markle, R.A., 621  
Marshall, A.T., 417  
Marshall Graves, J.A., 867  
Masters, R.E., 577  
Mathias, M.L., 441  
Maxwell, L.K., 301  
McDonald, I.R., 895  
McFarland, D.C., 401  
McGaw, I.J., 539  
McKelvey, M.W., 851  
McNab, B.K., 301  
McNamara, J.C., 771  
Millam, J.R., 663  
Miller, J.S., 409  
Milton, K., 47  
Moenter, S.M., 693  
Moibenko, A.A., 605  
Montero, D., 613  
Muñoz, F.J., 749

# Author Index

- Munday, B.L., 957  
Munks, S., 799  
Musser, A.M., 927  
Myburgh, K.H., 1  
Myburgh, K.H., 171
- Nagy, T.R., 379  
Naylor, J.M., 311  
Nicol, S., 795  
Nicol, S., 917  
Nicol, S., 799  
Nicol, S.C., 903  
Nishimura, H., 479  
Norberg, B., 641
- Oaks, J.A., 591  
Obata, K., 391  
Ogata, H.Y., 655  
Oku, H., 655  
Ono, T., 391  
Onyango, A.W., 61  
Otiang'a-Owiti, G., 701  
Otley, H., 799
- Pampanin, D.M., 631  
Pannaccione, A., 329  
Parker, R., 127  
Parpoura, A.C., 525  
Paxinos, G., 827  
Payette, A.L., 539  
Peavy, T.R., 343  
Perry, L.L., 911  
Perry, S.F., 227  
Phan, V.N., 321  
Phelps, P.K., 409  
Pierobon, P., 329  
Pilyavskii, A.I., 605  
Pis, T., 757  
Pretzman, C.I., 401  
Proske, U., 821
- Qiu, G.-F., 371
- Raithel, K., 725  
Rens, W., 867  
Rios, L., 71  
Rismiller, P.D., 851  
Ritar, A.J., 353
- Ørnsrud, R., 683
- Robertson, M.L., 5  
Rodrigues, E.N., 771  
Rotllant, J., 613  
Rowe, M.J., 883  
Ruane, N.M., 613  
Rupert, J.L., 191
- Sahai, V., 883  
Salama, A., 779  
Santos, S.M., 441  
Sasaki, S.-i., 391  
Sawdy, J.C., 401  
Schaeffer, P.J., 621  
Schmid, J., 903  
Secor, S.M., 379  
Seto, H., 371  
Snodgrass, J.J., 5  
Souza-Neto, J.A., 717  
Speakman, J.R., 903  
Spicer, J.L., 735  
Sponheimer, M., 27  
St-Pierre, N.R., 401  
Stabenau, E.K., 271  
Stanley, D.W., 409  
Stefansson, S.O., 525  
Sveinsbø, B.O., 525  
Swenson, E.R., 229
- Tähti, H., 779
- Taranger, G.L., 641  
Tazawa, H., 289  
Tiihonen, K., 779  
Torres, A.H., 771  
Tort, L., 613  
Towle, D.W., 243  
Tsai, P.-S., 693  
Tufts, B.L., 259
- Unuma, T., 371
- Van Anholt, R.D., 525  
Van Ham, E.H., 525  
Velleman, S.G., 401  
Villarin, J.J., 621  
Vuksan, V., 141
- Wagner, C., 591  
Walsh, P.J., 701  
Wang, R., 663  
Wang, Y., 127  
Webb, R.E., 577  
Weeks, J.M., 735  
Weihrauch, D., 243  
Wendelaar Bonga, S.E., 525  
White, D.A., 683  
Wick, M.P., 401  
Wilson, P., 701  
Wood, C.M., 701  
Woods, G.M., 957  
Wrangham, R., 35  
Wright, W.G., 791  
Wronski, E.V., 957
- Yamano, K., 371  
Yazawa, S., 391  
Yokota, M., 391  
Yosefi, S., 673

